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Substantial Change: Alteration of a Product as a Bar to a Manufacturer's Strict Liability

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I. Introduction: A Hazy Area in Products Liability

"[T]o insure that costs of injuries resulting from defective products are borne by the manufacturers that put such products on the market rather than by the injured persons who are powerless to protect themselves"[1] is the reason for rendering a manufacturer strictly liable.[2] Yet, the manufacturer is not an insurer of his product.[3] Section 402A of the *Restatement (Second) of Torts*[4] narrows the ambit of the manufacturer's liability by requiring that the product is "expected to and does reach the user or consumer without substantial change in the condition in which it was sold."[5] The importance of

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1. Greenman v. Yuba Power Prods., Inc., 59 Cal. 2d 57, 63, 377 P.2d 897, 901, 27 Cal. Rptr. 697, 701 (1962).

2. For a complete discussion of the policy behind strict liability see Cowan, *Some Policy Bases of Product Liability*, 17 STAN. L. REV. 1077 (1965); Keeton, *Products Liability—The Nature and Extent of Strict Liability*, 1964 U. ILL. L.F. 693; Prosser, *The Assault Upon the Citadel (Strict Liability to the Consumer)*, 69 YALE L.J. 1099 (1960).

3. While § 402A is meant to require manufacturers and sellers to bear much of the responsibility and cost of injuries to consumers resulting from their defective products, it is not meant to impose upon each manufacturer and seller an absolute liability as insurer for all injuries to consumers, regardless of the relation of plaintiff's injuries to the particular defendant's product.

Southwire v. Beloit E. Corp., 370 F. Supp. 842, 858 (E.D. Pa. 1974); *see* Lunt v. Brady Mfg. Corp., 13 Ariz. App. 305, 475 P.2d 964 (1970); Suvada v. White Motor Co., 32 Ill. 2d 612, 210 N.E.2d 182 (1965); Shramek v. General Motors Corp., 69 Ill. App. 2d 72, 216 N.E.2d 244 (1966); Dippel v. Sciano, 37 Wis. 2d 443, 155 N.W.2d 55 (1967).

4. RESTATEMENT (SECOND) OF TORTS § 402A (1965) [hereinafter cited as RESTATEMENT].

(1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property if

(a) the seller is engaged in the business of selling such product, and

(b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.

(2) The rule stated in Subsection (1) applies although (a) the seller has exercised all possible care in the preparation and sale of the product, and (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

5. *Id.* Most courts apply the phrase "substantial change" of § 402A to alterations made before or after the product reaches the consumer. *See, e.g.*, Franks v. National Dairy Prods. Corp., 282 F. Supp. 528 (W.D. Tex. 1968), *aff'd*, 414 F.2d 682 (5th Cir. 1969); Hatcher v. American Motors Corp., 241 So. 2d 147 (Miss.

the substantial change concept is readily apparent. Today products rarely reach ultimate consumers without passing through several processing stages. As a result courts continually must determine whether alterations made after a product left its manufacturer's control were substantial enough to relieve the manufacturer of liability for injury caused by the product.[6]

Despite its importance postmanufacturing modification remains a hazy area in strict liability.[7] Courts have developed various determinations of substantial change and have reached inconsistent decisions. To introduce a measure of clarity, this comment will first examine elements considered in determining whether a change is substantial. Application of the substantial change concept to specific types of alterations and its procedural effects will then be analyzed. Finally, the comment will discuss a manufacturer's liability when changes expected to be made before his product reaches the consumer are not made.

II. Elements of Substantial Change

The state of the law on what constitutes a substantial change is in disarray.

> The courts do not seem to adopt the same legal theory. Some place it under ordinary rules of contributory negligence; others relate it more to the matter of causation of the injuries, while others treat it as a question of whether or not the identity of the product has been preserved.[8]

The effect of a product's alteration on its manufacturer's liability arises in causes of action based on negligence, breach of warranty, and strict liability in tort.[9] Courts have failed to distinguish among these three types of products liability actions. Theories better suited to negligence or warranty actions have been grafted onto strict liability, although their concepts of liability are not those of the latter. A more

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1970). *Contra,* Dennis v. Ford Motor Co., 471 F.2d 733 (3d Cir. 1973); Bradford v. Bendix-Westinghouse Auto. Air Brake Co., 33 Colo. App. 99, 517 P.2d 406 (1973).

6. A processor at any stage of production can be relieved of liability for a product that is substantially changed in a subsequent stage. The scope of this comment, however, is limited to the liability of a manufacturer in the initial stage of production.

7. Although much material has been written on strict liability in the past fifteen years, there are unexplored areas. "In view of the plethora of cases which have been brought under § 402A, it is surprising that so little has been written on the subject of § 402A(1)(b), which deals with substantial changes in the condition of the product.' Southwire v. Beloit E. Corp., 370 F. Supp. 842, 856 (E.D. Pa. 1974).

8. Texas Metal Fabr. Co. v. Northern Gas Prods. Corp., 404 F.2d 921, 924 (10th Cir. 1968).

9. Although the approach to substantial change is similar in these causes of action, the discussion in this comment is limited to strict liability. For a general treatment of the effect of alteration on a manufacturer's liability, see R. HURSH & H. BAILEY, AMERICAN LAW OF PRODUCTS LIABILITY §§ 1:13, 1:30 (2d ed. 1974); Annot., 41 A.L.R.3d 1251 (1972).

logical view, followed herein, is to evaluate how well each theory achieves the goals of strict liability.[10]

A. Change in Identity

The change-in-identity theory assumes that a product modified to a certain extent ceases to be the same article produced by the manufacturer. The concept's origins lie in products liability cases based on breach of warranty. Faced with a trend toward elimination of privity in warranty actions, courts unwilling to make this change circumvented the problem by holding that manufacturer's warranties did not extend to products whose identity had been changed by subsequent modification.

A typical case is *Young v. Aeroil Products Co.*,[11] a breach of warranty action in which a construction worker was killed when thrown from a portable elevator. After noting that the law of warranty was "developing and dynamic," the court found no need to "turn another corner" by permitting recovery against a manufacturer by one not in privity.[12] The court emphasized the change the plaintiff's employer had made to the elevator prior to the accident:

> This proof that the purchaser altered the conveyor by adding to its height and by changing the position of the hitch which modified the center of gravity, and also that he had had extensive repairs made on the machine after it had twice been damaged indicate that a far different product had been created than that which was purchased. At the time of the tragic accident the thing being used was not the thing sold.[13]

Because the injury-causing instrumentality differed substantially from that produced by defendant-manufacturer, the manufacturer was insulated from liability.[14]

This same approach was used to bar two strict liability causes of

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10. *See* notes 1-2 and accompanying text *supra*.
11. 248 F.2d 185 (9th Cir. 1957).
12. *Id.* at 190.
13. *Id.*
14. A good example of how courts avoid extension of warranty protection to a party not in privity is Collum v. Pope & Talbot, Inc., 135 Cal. App. 2d 653, 288 P.2d 75 (1955). The court held that carpenters injured by the collapse of wooden ceiling joists they had made had no cause of action in warranty because

> these changes which plaintiffs had made in this piece of lumber were such as would seem to make it inequitable for the law to treat it as the very same article which the mill owner sold to the dealer and the dealer sold to the contractor, when the urge is to extend an exception to the rule which requires privity of contract.

Id. at 660, 288 P.2d at 80.

action in which substantial change was an issue. In *Willeford v. Mayrath*[15] a manufacturer of farm elevators that had sent unassembled machines to a retailer was relieved of liability for injuries sustained by a twelve-year-old boy whose foot became entangled in the elevator drive shaft. The court reasoned that "the machine could not have been said to have existed while the various parts thereof were in stock at [the retailer's]."[16] Similarly in *Walker v. Stauffer Chemical Corp.*[17] a manufacturer of sulfuric acid used in producing drain cleaner was held not liable for injuries caused by an explosion of the cleaner. Because the acid's chemical composition and container had been altered, the court found that "[t]he ultimate product . . . can in no way be considered to be one in the same bulk sulfuric acid . . . sold to [the drain cleaner manufacturer]."[18]

The change-in-identity theory has questionable validity in warranty law; it has none in strict liability. Although change in identity is readily apparent when there has been significant alteration, decisions become more arbitrary when articles have been modified to a lesser extent. The lack of objective standards may permit a manufacturer to escape liability for a defective product merely by shipping it in component parts.[19] This result is clearly inconsistent with the philosophy of consumer protection that underlies strict liability.

B. Causation

Recovery in strict liability requires plaintiff to prove both that the product was defective[20] and that the defect caused his injuries.[21] This burden is increased sharply by an alteration to the injury-causing product. In addition to establishing a defect attributable to the manufacturer, plaintiff must show that the alteration did not break the causal connection between the defect and the injury.

Whether an alteration broke the causal connection and was itself the cause of the injury is usually a question of fact,[22] except in those

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15. 7 Ill. App. 3d 357, 287 N.E.2d 502 (1972).
16. *Id.* at 361, 287 N.E.2d at 505.
17. 19 Cal. App. 3d 669, 96 Cal. Rptr. 803 (1971); *see* notes 89-94 and accompanying text *infra.*
18. 19 Cal. App. 3d at 672, 96 Cal. Rptr. at 805.
19. *See* Willeford v. Mayrath, 7 Ill. App. 3d 357, 366, 287 N.E.2d 502, 508 (1972) (dissenting opinion).
20. *See, e.g.,* Bailey v. Montgomery Ward & Co., 6 Ariz. App. 213, 431 P.2d 108 (1967); Gutierrey v. Superior Court, 243 Cal. App. 2d 710, 52 Cal. Rptr. 592 (1966); Keener v. Dayton Elec. Mfg. Co., 445 S.W.2d 362 (Mo. 1969); McLaughlin v. Sears, Roebuck & Co., 111 N.H. 265, 281 A.2d 587 (1971). *See also* Note, *Proof of Defect in a Strict Products Liability Case,* 22 MAINE L. REV. 189 (1970).
21. *See, e.g.,* Essex Wire Corp. v. Salt River Project Agric. Improv. & Power Dist., 9 Ariz. App. 295, 451 P.2d 653 (1969); O'Lander v. International Harv. Co., 260 Ore. 383, 490 P.2d 1002 (1971); Ford Motor Co. v. Eads, 224 Tenn. 473, 457 S.W.2d 28 (1970).
22. *See* States S.S. Co. v. Stone Mang. Marine Ltd., 371 F. Supp. 500 (D.N.J.

rare cases in which the absence of evidence prevents a contrary finding.[23] The standards used by the trier of fact, however, as a basis for this determination are unclear. As in negligence law the concept of causation in strict liability is plagued with confusion.[24] For example, causation can exist at different levels: a product alteration can be either the sole cause of an injury or a cause contributing to preexisting defect. In the ten years since adoption of section 402A, a consistent approach to these two levels of causation has not yet been developed.

1. Injuries Caused Solely by an Alteration.—A manufacturer is strictly liable for a product that was defective when it left his control.[25] When no evidence supports the existence of a defect in a product before its modifications, determining substantial change is rather simple: the manufacturer is not liable.[26] In *Cornette v. Sear-*

1973); O.S. Stapley Co. v. Miller, 103 Ariz. 556, 447 P.2d 248 (1968); Hatcher v. American Motors Corp., 241 So. 2d 147 (Miss. 1970); Finnegan v. Havir Mfg. Co., 60 N.J. 413, 290 A.2d 286 (1972); Anderson v. Klix Chem. Co., 256 Ore. 199, 472 P.2d 806 (1970).

23. *See* Martinez v. Nichols Conv'r & Eng'r, 243 Cal. App. 2d 795, 52 Cal. Rptr. 842 (1966). *See also* Putensen v. Clay Adams, Inc., 12 Cal. App. 3d 1062, 91 Cal. Rptr. 319 (1970).

24. Many courts in discussing substantial change speak of an alteration as the proximate cause of an injury. Proximate cause refers to the legal determination of whether a party should be held liable for an injury to which he contributed in some way. "Legal cause" perhaps would be a better term. To avoid definitional problems this comment will employ the word "cause" to mean causation in fact or actual physical cause. Thus, a defect must have been a necessary antecedent of an injury to be considered a cause of that injury. *See* W. PROSSER, LAW OF TORTS §§ 41-42 (4th ed. 1971) [hereinafter cited as PROSSER]. *See also* RESTATEMENT §§ 430-452; Myers, *Causation and Common Sense*, 5 U. MIAMI L.Q. 238 (1951); Pound, *Causation*, 67 YALE L.J. 1 (1957).

25. RESTATEMENT § 402A, comment *g* at 351:

> *Defective condition.* The rule stated in this Section applies only where the product is, at the time it leaves the seller's hands, in a condition not contemplated by the ultimate consumer, which will be unreasonably dangerous to him. The seller is not liable when he delivers the product in a safe condition, and subsequent mishandling or other cause make it harmful by the time it is consumed. The burden of proof that the product was in a defective condition at the time it left the hands of the particular seller is upon the injured plaintiff; and unless evidence can be produced which will support the conclusion that it was then defective, the burden is not sustained.
>
> Safe condition at the time of delivery by the seller will, however, include proper packaging, necessary sterilization, and other precautions required to permit the product to remain safe for a normal length of time when handled in a normal manner.

26. *See* Hardy v. Hull Corp., 446 F.2d 34 (9th Cir. 1971); Speyer, Inc. v. Humble Oil & Ref. Co., 403 F.2d 766 (3d Cir. 1968); Southwire v. Beloit E. Corp., 370 F. Supp. 842 (E.D. Pa. 1974); Martinez v. Nichols Conv'r & Eng'r, 243 Cal. App. 2d 795, 52 Cal. Rptr. 842 (1966); Kirby v. General Motors Corp., 10 Ill. App. 3d 92, 293 N.E.2d 345 (1973); Cornette v. Searjeant Metal Prods., Inc., 147 Ind. App. 46, 258 N.E.2d 652 (1970); Magnuson v. Rupp Mfg., Inc., 285 Minn. 32, 171 N.W.2d 201 (1969); Kuisis v. Baldwin-Lima-Hamilton Corp., 457 Pa. 321, 319 A.2d

geant Metal Products, Inc.[27] plaintiff was injured when a punch press he was operating malfunctioned. He brought suit against the manufacturer of the press' safety control system. Recovery under section 402A was denied because an air filter had been removed from the press prior to the accident. The court found that the air filter's removal, contrary to the manufacturer's instructions, could have caused the malfunction.[28] Without evidence of a defect any change increasing the likelihood of malfunction is a substantial change.[29]

When the evidence indicates a preexisting defect, a more difficult causation problem develops. In *Texas Metal Fabricating Co. v. Northern Gas Products Corp.*[30] tubes rattled within a heat exchanger manufactured by defendant. Fearing that loose tubes would cause excess wear, the owner had holes drilled in the unit and the tubes bolted against its interior. Gas escaped through one of these holes and exploded, injuring an employee. In an action against the manufacturer the court held that although the alteration had been necessitated by a defect in the heat exchanger, "this intervening act by the contractor and the owner was clearly shown to be the cause of this accident and the manufacturer cannot be held liable."[31] Thus, a defective product does not imply automatic liability; it must be causaly connected to the subsequent injury.[32]

The converse also is true: if the injury was caused solely by an antecedent defect, an alteration of the product does not bar the manufacturer's strict liability.[33] This situation usually arises when the modified part is not related to the injury-producing defect. For example, the court in *Dennis v. Ford Motor Co.*[34] held that addition of a fifth wheel[35] would not affect a tractor manufacturer's liability for a defective steering mechanism. Because there was no causal

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914 (1974). *See also* O.S. Stapley Co. v. Miller, 103 Ariz. 556, 447 P.2d 248 (1968); Putensen v. Clay Adams, Inc., 12 Cal. App. 3d 1062, 91 Cal. Rptr. 319 (1970); Rossignal v. Danbury School of Aero., Inc., 154 Conn. 549, 227 A.2d 418 (1967).

27. 147 Ind. App. 46, 258 N.E.2d 652 (1970).

28. *Id.* at 54, 258 N.E.2d at 657.

29. *Id.*

30. 404 F.2d 921 (10th Cir. 1968).

31. *Id.* at 925.

32. *See also* Hatcher v. American Motors Corp., 241 So. 2d 147 (Miss. 1970).

33. *See* McPhee v. Oliver Tyrone Corp., 489 F.2d 718 (8th Cir. 1974); Dennis v. Ford Motor Co., 471 F.2d 733 (3d Cir. 1973); Blim v. Newbury Indus., 443 F.2d 1126 (10th Cir. 1971); Franks v. National Dairy Prods. Corp., 414 F.2d 682 (5th Cir. 1969); States S.S. Co. v. Stone Mang. Marine Ltd., 371 F. Supp. 500 (D.N.J. 1973); Dorsey v. Yoder Co., 331 F. Supp. 753 (E.D Pa 1971), *aff'd*, 474 F.2d 1339 (2d Cir. 1972); Greco v. Bucciconi Eng'r Co., 283 F. Supp. 978 (W.D. Pa. 1967), *aff'd*, 407 F.2d 87 (3d Cir. 1969); Ford Motor Co. v. Matthews, 291 So. 2d 169 (Miss. 1974); Anderson v. Klix Chem. Co., 256 Ore. 199, 472 P.2d 806 (1970).

34. 471 F.2d 733 (3d Cir. 1973).

35. A fifth wheel is a coupling in the form of two disks rotating on each other used in attaching a semitrailer to a tractor. WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 847 (14th ed. 1961).

connection between the alteration and the accident, the court upheld the jury's finding of no substantial change.[36] Indeed, even a subsequent change closely connected with the defective portion of a product may not prevent the manufacturer's liability. In *Blim v. Newbury Industries, Inc.*[37] plaintiff's employer removed mechanical drop bars from a plastic injector press manufactured by defendant. In finding for plaintiff the court distinguished *Texas Metal*:[38]

> Here the mechanical drop bars were safety features designed to prevent just such an injury as that sustained by appellee. Since evidence demonstrated that they were already ineffective, their removal could not even exacerbate the hazard; *a fortiori*, it could not, as a matter of law, constitute a superseding, intervening cause of injury.[39]

An alteration with no effect on the occurrence of the injury is insubstantial.[40]

The actual cause of an injury is often difficult to determine. Alterations to a product can obscure the origins of a defect. When a defect cannot be attributed with certainty to the original manufacturing process or to a subsequent alteration, liability is placed on the party best able to detect flaws in the product.[41] "The question is essentially one of whether the responsibility for discovery and prevention of the dangerous aspect is shifted to the intermediate party who is to make the changes."[42] This test was used in *Putensen v. Clay Adams, Inc.*,[43] which involved polyethylene tubing purchased by a hospital. During a heart catherization, a diagnostic procedure in which radio opaque material is injected into the heart through a tube inserted in an artery, the tubing kinked, necessitating its removal by surgery. Quoting comment *p* of section 402A, the court held that the burden of discovery and prevention of the kinking defect had shifted to defendant-surgeon, who had examined and processed the tubing

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36. 471 F.2d at 735.
37. 443 F.2d 1126 (10th Cir. 1971).
38. Texas Metal Fabr. Co. v. Northern Gas Prods. Corp., 404 F.2d 921 (10th Cir. 1968); *see* notes 30-32 and accompanying text *supra*.
39. 443 F.2d at 1128.
40. *See* Greco v. Bucciconi Eng'r Co., 407 F.2d 87 (3d Cir. 1969). In *Greco* an alteration made to correct a defect attributable to the manufacturer was not substantial because it had no causal connection to the injury.
41. The origin of a defect is especially difficult to determine when raw materials require further processing to become usable products. *See* notes 89-94 and accompanying text *infra*.
42. RESTATEMENT § 402A, comment *p* at 357.
43. 12 Cal. App. 3d 1062, 91 Cal. Rptr. 319 (1970).

for use in the operation.[44] Therefore, the manufacturer was free of liability.

2. Injuries Caused by Both Defect and Alteration.—The causation issue becomes most blurred when neither an antecedent defect nor an alteration is the sole cause of the injury. In these cases the phrase "superseding cause"[45] is commonly used. Because this concept is derived from negligence law,[46] however, its validity in strict liability is suspect.

Surprisingly, no decisions have applied the concept of superseding cause to a situation involving concurrent causation of injury. In each decision discussing superseding cause the defect[47] or the alteration was found to be the sole cause.[48] The problem, however, has been discussed in dicta. In *Dennis v. Ford Motor Co.*[49] the court stated that "[a] manufacturer may be insulated from liability for the malfunction of an instrumentality when a change in the condition of such an instrumentality causes or significantly contributes to the malfunction of the instrumentality involved."[50] The use of the word "significantly" in describing superseding cause in strict liability parallels the negligence concept of substantial factor[51] and needlessly confuses the two actions.[52]

To allow any alteration less than the sole cause of the harm to supersede the manufacturer's liability is incongruous with the purpose

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44. *Id.* at 1073, 91 Cal. Rptr. at 326. The surgeon made a visual and tactile examination of the tubing. The tactile examination consisted of running his fingers along the tube and bending it to test flexibility. The precatherization process included stretching, cutting, and soaking the tubing. *Id.* at 1070, 91 Cal. Rptr. at 323.

45. Although some courts use the phrase "intervening superseding cause" rather than "superseding cause," the terms are interchangeable.

46. In negligence law a superseding cause is defined as "an act of a third person or other force which by its intervention prevents the actor from being liable for harm to another which his antecedent negligence is a substantial factor in bringing about." RESTATEMENT § 440. For further clarification of the concept of superseding cause see PROSSER, *supra* note 24, at § 44.

47. *See* Dennis v. Ford Motor Co., 471 F.2d 733 (3d Cir. 1973); Blim v. Newbury Indus., Inc., 443 F.2d 1126 (10th Cir. 1971).

48. *See* Texas Metal Fabr. Co. v. Northern Gas Prods. Corp., 404 F.2d 921 (10th Cir. 1968); Southwire v. Beloit E. Corp., 370 F. Supp. 842 (E.D. Pa. 1974); Kuisis v. Baldwin-Lima-Hamilton Corp., 457 Pa. 321, 319 A.2d 914 (1974).

49. 332 F. Supp. 901 (W.D. Pa. 1971), *aff'd*, 471 F.2d 733 (3d Cir. 1973).

50. *Id.* at 903.

51. *See* note 44 *supra.*

52. The validity of using negligence concepts in strict liability was discussed in Southwire v. Beloit E. Corp., 370 F. Supp. 842 (E.D. Pa. 1974). The court posed three alternative views. First, because strick liability is not dependent on fault, a faultless defendant should be relieved of liability by an alteration less significant than a superseding cause in the negligence sense. Second,

> since § 402A liability is designed to be broader than negligence liability, it would be consistent with the intent of § 402A to require that, for a substantial change to negate § 402A liability, it must be at least as significant a break in the chain of causation as an intervening, superseding cause is in negligence law.

Id. at 857 n.21. Last, the court noted that perhaps courts should find that substantial change is the sole cause of the injury before the manufacturer is absolved of liability.

of strict liability. A manufacturer should not escape responsibility for an accident-causing defect—no matter how small a role it played in the actual injury—simply because some alteration was a contributing factor. If a causal connection exists between the injury and a defect present when the product left the manufacturer's hands, he should be liable.

This view has been adopted by courts confronted with concurrent causes of injury. The reasoning is best illustrated by *Wells v. Webb Machinery Co.*[53] Plaintiff was injured when the ram of a punch press descended unexpectedly in midcycle and crushed his hands. Defective design of the punch press was established: the electrical circuiting had been designed so that current could flow through the machine even if a part failed. When plaintiff's employer installed a defective unit switch, the machine malfunctioned. The court found the installation of the defective switch to be an insubstantial change. Defendant-manufacturer contended that its liability was barred by the alteration and that the defective switch was the sole cause of the accident.[54] Recognizing that the injury would not have occurred without the defective switch, the court nevertheless imposed liability on the manufacturer because the "press was unsafe and harmful at delivery because of its design irrespective of any defective component part."[55]

To its credit the *Wells* court did not use the phrase "superseding cause." When a superseding cause is defined as the sole cause of the injury, one might ask what is superseded. If no causal connection exists between the original defect and the injury, a substantial change does not supersede anything. Much confusion will be prevented if courts avoid negligence terms and define substantial change as an alteration that was the sole cause of an injury.

C. Foreseeability

The use of the term "foreseeability" is usually identified with negligence law. Liability for a negligent act or omission is limited to foreseeable consequences of that act or omission.[56] The term has a

53. 20 Ill. App. 3d 545, 315 N.E.2d 301 (1974).
54. *Id.* at 553, 315 N.E.2d at 309.
55. *Id.* at 553, 315 N.E.2d at 310.
56. The area within which liability is imposed is that which is within the circle of reasonable foreseeability, using the original point at which the negligent act was committed or became operative, and thence looking in every direction as the semi-diameters of the circle, and those injuries which

different meaning, however, in strict liability:[57] foreseeability of a product's uses establishes the parameters of its manufacturer's responsibility. A manufacturer is liable for all injuries that occur during a foreseeable use of his product.[58]

A manufacturer's strict liability also extends to injuries caused by alterations that he could reasonably anticipate.[59] As long as an alteration can be anticipated, foreseeability of the manner in which the injury occurs is unimportant.[60] Thus, conversion of a construction machine from shovel to dragline to crane was held foreseeable since conversion was contemplated in the machine's design.[61] Similarly, addition of a grinding wheel to a grinding machine[62] and of a sprayer to a cleaning fluid container[63] were considered foreseeable alterations because they were within the products' intended uses. On the other hand, when a change is so great that "it [is] then feasible to use the equipment in a manner different from which would have been expected from observation of the original design,"[64] there can be no finding of foreseeability.

There is some confusion concerning the interrelationship of causation and foreseeability in determining substantial change. For example, the court in *Kuisis v. Baldwin-Lima-Hamilton Corp.*[65]

> from this point could or should have been reasonably foreseen, as something likely to happen, are within the field of liability, while those which, although foreseeable, were foreseeable only as remote possibilities, those only slightly probable, are beyond and not within the circle—in all of which time, place and circumstance play their respective and important parts.

Mauney v. Gulf Ref. Co., 193 Miss. 421, 428-29, 9 So. 2d 780, 781 (1942). *See also* PROSSER, *supra* note 24, at § 43.

57. *See* Eshbach v. W.T. Grant's & Co., 481 F.2d 940 (3d Cir. 1973); *cf.* Oehler v. Davis, 223 Pa. Super. 333, 298 A.2d 895 (1972).

58. Eshbach v. W.T. Grant's & Co., 481 F.2d 940, 943 (3d Cir. 1973). To illustrate the distinction between the negligence and strict liability concepts of foreseeability, the court gave the following examples:

> [T]he manufacturer or seller is not required to foresee, for example, that a lawnmower—which is designed to cut grass—will be used to cut logs or cut pipe. Yet, he is required to foresee an injury resulting from a defect, which injury occurs during the use of the mower for a purpose for which it was intended, even if the injury did not occur in the particular manner one might expect. It is to this extent, then, and to this extent only, that foreseeability enters into the strict liability equation.

Id.

59. D'Antona v. Hampton Grinding Wheel, Inc., 225 Pa. Super. 120, 125, 310 A.2d 307, 310 (1973); *see* Mazzi v. Greenlee Tool Co., 320 F.2d 821 (2d Cir. 1963); Anderson v. Klix Chem. Co., 256 Ore. 199, 472 P.2d 806 (1970).

60. Anderson v. Klix Chem. Co., 256 Ore. 199, 210, 472 P.2d 806, 811 (1970). For a discussion of what constitutes an unforeseeable use of a product, see Dale & Hilton, *Use of a Product—When Is It Abnormal?*, 4 WILLAMETTE L.J. 350 (1967).

61. Kuisis v. Baldwin-Lima-Hamilton Corp., 457 Pa. 321, 333-34 n.15, 319 A.2d 914, 922 n.15 (1974).

62. D'Antona v. Hampton Grinding Wheel, Inc., 255 Pa. Super. 120, 310 A.2d 307 (1973).

63. Anderson v. Klix Chem. Co., 256 Ore. 199, 472 P.2d 806 (1970).

64. Schreffler v. Birdsboro Corp., 490 F.2d 1148, 1153 (3d Cir. 1974).

65. 457 Pa. 321, 319 A.2d 914 (1974).

found that "whether a post-delivery alteration in a product is a superseding cause of harm to a plaintiff may turn on foreseeability as well as causation in fact."[66] To define superseding cause in terms of foreseeability is erroneous. Foreseeability has no effect on causation. Rather, it is the means of determining whether liability should be imposed on a manufacturer even though an alteration was a cause of the injury. Causation and foreseeability are both elements in the classification of a change as substantial and, as such, should be determined separately.

The foreseeability approach to substantial change is vital in the determination of design defects that render a product unsafe in normal use.[67] If an alteration of a product is foreseeable, its manufacturer, who is best able to discover and prevent design inadequacies, is liable even though the alteration is the direct cause of the injury.[68] In *Ford Motor Co. v. Russel & Smith Ford Co.*[69] the plaintiff was burned by steam and hot water from a broken radiator hose in a van manufactured by the defendant. The cause of the accident was the overburdening of the cooling system by the dealer's installation of an air conditioner. Because the installation was a reasonable alteration, responsibility for the defect remained with the manufacturer, who was held liable for failure to warn[70] the dealer of dangers inherent in the cooling system.[71]

Anticipated change will not relieve a manufacturer of liability. A manufacturer must design a product so that foreseeable modifications will not cause product failure.[72] A manufacturer's liability is not

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66. *Id.* at 333 n.15, 319 A.2d at 922 n.15.

67. Defects caused by the planning for, rather than the manufacturing of, a product are commonly known as design defects. *See* Keeton, *Manufacturer's Liability: The Meaning of "Defect" in the Manufacture and Design of Products*, 20 SYRACUSE L. REV. 559 (1969). *See generally* Wade, *Strict Tort Liability of Manufacturers*, 19 SW. L.J. 5 (1965).

68. The rule is that if the manufacturer or assembler surrenders possession and control of a product in which change will occur, or in which change can be anticipated to occur so as to cause a product failure, the existence of a defect at the vital time is established.

Sharp v. Chrysler Corp., 432 S.W.2d 131, 136 (Tex. Civ. App. 1968).

69. 474 S.W.2d 549 (Tex. Civ. App. 1971).

70. A manufacturer may be liable under § 402A for failure to warn of a product's inherent dangers. RESTATEMENT § 402A, comment *j* at 353; *see* Noel, *Products Defective Because of Inadequate Direction or Warnings*, 23 SW. L.J. 256 (1969).

71. 474 S.W.2d at 558. For further discussion of a manufacturer's liability for alterations made by an authorized dealer, see Vandermark v. Ford Motor Co., 61 Cal. 2d 256, 391 P.2d 168, 37 Cal. Rptr. 896 (1964); Alvarez v. Felker Mfg. Co., 230 Cal. App. 2d 987, 41 Cal. Rptr. 514 (1964).

72. *See* notes 25-48 and accompanying text *supra.*

absolute, however, for he has no responsibility for injuries caused solely by an unforeseeable modification.[73] A test of substantial change based on causation and foreseeability best protects an injured consumer without making the manufacturer an insurer of his product.

III. Classification of Changes

The theory of substantial change can be readily understood in specific fact situations. Because most alterations fall into a limited number of categories, subtle differences in seemingly similar alterations can be studied to find what makes one change substantial and another unimportant.

A. Assembly—Disassembly

The issue of substantial change is not restricted to situations in which the product has been altered from its original specifications. Litigation frequently occurs in the area of assembly or replacement of component parts. Manufacturers commonly ship large industrial and farm machinery in separate pieces to be assembled by the purchaser. Although there is some authority under the change-in-identity theory that these manufacturers are insulated from strict liability because no product existed at the time of shipment,[74] the better view determines liability on actual causation.[75] As an illustration, in *Greco v. Bucciconi*[76] defendant manufactured a piler for use in a steel plant. It was shipped in three parts and assembled on arrival. In a products liability action for a hand injury caused by a defect in the piler, the court held that because the machine was not altered upon assembly, the manufacturer was still liable for injuries caused by the defect.[77]

Determining causation and the resulting liability is more difficult when component machine parts have been replaced or repaired. When components have been properly replaced with parts produced by the original manufacturer, an inference arises that the replacement parts did not cause the injury.[78] On the other hand, in a case in which repairs were made by plaintiff and the replacement parts were not designed, produced, or sold by the manufacturer, the plaintiff was barred from a claim in strict liability.[79] If an injury-causing defect attributable to the manufacturer is established, courts that define

73. *See* notes 45-56 and accompanying text *supra.*
74. *See* notes 15-16 and accompanying text *supra.*
75. *See* notes 33-41 and accompanying text *supra.*
76. 407 F.2d 87 (3d Cir. 1968).
77. *Id.* at 92.
78. Ford Motor Co. v. Matthews, 291 So. 2d 169 (Miss. 1974).
79. Kirby v. General Motors Corp., 10 Ill. App. 3d 92, 293 N.E.2d 345 (1973).

substantial change in terms of sole causation[80] will hold the manufacturer strictly liable even though the replacement of a component part was a contributing cause.[81]

Liability also may extend to a manufacturer of a defective component part that causes an injury after its incorporation into a larger product. Comment *q* of section 402A suggests that "where there is no change in the component part itself, but it is merely incorporated into something larger, the strict liability will be found to carry through to the user or consumer."[82] This suggestion was adopted in *Suvada v. White Motor Co.*[83] Plaintiff owned a tractor unit that collided with a bus when the tractor's brake system failed. In an indemnification suit against the truck manufacturer and the brake system manufacturer, the Illinois Supreme Court held that strict liability applies to the maker of a component part that was not changed during the installation process.[84]

Removal of machine parts may relieve a manufacturer of strict liability if the alteration was the actual cause of the injury.[85] In *Magnusun v. Rupp Manufacturing, Inc.*[86] a plaintiff injured by an exposed sparkplug on a snowmobile could not recover from the manufacturer because the sparkplug cover had been removed. In *Ward v. Hobart Manufacturing Co.*[87] the manufacturer of a meat grinder was insulated from liability for injuries sustained through the use of his product because a guard that would have prevented the accident was removed. The result would have been different, however, if the guard's presence would not have prevented the harm.[88]

B. Fabrication from Raw Materials

Determining responsibility for a defect is especially difficult when raw materials require processing to become usable products.[89]

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80. *See* notes 42-56 and accompanying text *supra.*
81. *See* notes 53-56 and accompanying text *supra.*
82. RESTATEMENT § 402A, comment *q* at 558.
83. 32 Ill. 2d 612, 210 N.E.2d 182 (1965).
84. *Id.* at 623, 210 N.E.2d at 188; *see* Putman v. Erie City Mfg. Co., 338 F.2d 911 (5th Cir. 1964); Deveny v. Rheem Mfg. Co., 319 F.2d 124 (2d Cir. 1963); Burbage v. Boiler Eng'r & Supply Co., 433 Pa. 319, 249 A.2d 563 (1969); City of Franklin v. Badger Ford Truck Sales, Inc., 58 Wis. 2d 641, 207 N.W.2d 866 (1973). *But see* Goldberg v. Kollsman Instr. Corp., 12 N.Y.2d 432, 191 N.E.2d 81, 240 N.Y.S.2d 592 (1963).
85. *See* notes 25-29 and accompanying text *supra.*
86. 285 Minn. 32, 171 N.W.2d 201 (1969).
87. 317 F. Supp. 841 (S.D. Miss. 1973), *aff'd*, 450 F.2d 1176 (5th Cir. 1971).
88. *See* notes 37-41 and accompanying text *supra.*
89. *See* notes 56-73 and accompanying text *supra.*

Because of the great change from raw material to final product, the defect that actually caused an injury is often impossible to pinpoint. In these cases the liability of the seller of the raw material turns on "whether the responsibilty for discovery and prevention of the dangerous defect is shifted to the intermediate party who is to make the change."[90]

The two cases that have faced the question of change in raw material are excellent examples of how the burden of defect discovery and prevention can shift. In *Walker v. Stauffer Chemical Corp.*[91] the court held that a manufacturer of bulk sulfuric acid was not strictly liable for injury caused by an explosion of drain cleaner produced from the acid.

> We do not believe it realistically feasible or necessary to the protection of the public to require the manufacturer and supplier of a standard chemical ingredient such as bulk sulfuric acid, not having control over the subequent compounding, packaging or marketing of an item eventually causing injury to the ultimate consumer, to bear the responsibility for that injury.[92]

Responsibility for prevention of the defect clearly lay with the processor, thus relieving the acid manufacturer of liability. *States Steamship Co. v. Stone Manganese Marine Ltd.*[93] provides a contrast to *Walker*. Defendant was a manufacturer of an alloy used in the production of ship propellers. Certain propellers were found defective and a ship owner brought suit for property damage. Noting that "a change in the shape of the product, however noticeable, is not dispositive of the change issue," the court denied defendant's motion for summary judgment and left the substantial change issue to the jury.[94]

In *States Steamship* the alloy was specifically produced for propellers. The manufacturer was aware of the minimum qualities necessary for adequate propeller strength. On the other hand, the acid in *Walker* was not solely for drain cleaners. The acid manufacturer was unable to determine the eventual characteristics of his product after its combination with other elements. Thus, in *States Steamship* the manufacturer had the best opportunity to prevent propeller defects, but in *Walker* that responsibility shifted to an intermediate party, the drain cleaner producer.

C. *Lapse of Time*

Lapse of time between the manufacture of a product and injury

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90. RESTATEMENT § 402A, comment *p* at 357.
91. 19 Cal. App. 3d 669, 96 Cal. Rptr. 803 (1971).
92. *Id.* at 674, 96 Cal. Rptr. at 806.
93. 371 F. Supp. 500 (D.N.J. 1973).
94. *Id.* at 505.

caused thereby is never a substantial change in itself.[95] There is no rule relieving a manufacturer of liability for a defect after a product has been used for a certain length of time.[96] Regardless of how long a product has been used, the test is the same: Was the product defectively manufactured and was the defect the cause of the injury?[97]

Nevertheless, lapse of time is an important circumstance in determining causation in strict liability.[98] Plaintiff's burden of proving causation increases sharply with the passage of significant periods of time.[99] After prolonged use of a manufactured article plaintiff is precluded from relying on an inference that the article was defectively manufactured.[100] Absent direct evidence of an identifiable defect, therefore, continuous use over a long period will defeat an action in strict liability.[101]

The importance of prolonged use is illustrated by *Kuisis v. Baldwin-Lima-Hamilton Corporation.*[102] Plaintiff was injured by a load of steel pipe when a brake locking mechanism on the crane from

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95. For a complete discussion of the effect of lapse of time on products liability actions, see Comment, *Time Lapse in Products Liability*, 4 WILLAMETTE L.J. 394 (1967); L. FRUMER & M. FREEDMAN, PRODUCTS LIABILITY § 11:03 (1974); Annot., 54 A.L.R.3d 1079 (1974); 1 R. HURSH & H. BAILEY, 1 AMERICAN LAW OF PRODUCTS LIABILITY § 1.13 (2d ed. 1974).

96. Kuisis v. Baldwin-Lima-Hamilton Corp., 224 Pa. Super. 65, 68, 301 A.2d 911, 912 (1973) (dissenting opinion), *rev'd*, 457 Pa. 321, 319 A.2d 914 (1974). *But cf.* Lynch v. International Harv. Co., 60 F.2d 223 (10th Cir. 1932).

97. Tucker v. Unit Crane & Shovel Corp., 256 Ore. 318, 321, 473 P.2d 862, 863 (1970).

98. A prolonged lapse of time between the purchase of a product and an injury producing accident occupies an extremely vital role in the question of causation. Even adoption of strict liability, eliminating both the privity and negligence requirements does not resolve the plaintiff's burden of proving causation. He still must prove that he received an injury due to a defect or unsafe condition of the product which was present at the time of sale.

Comment, *Time Lapse in Products Liability*, 4 WILLAMETTE L.J. 394 (1967).

99. Dudley v. Bayou Fabr., Inc., 330 F. Supp. 788, 791 (S.D. Alabama 1971).

100. Tracing the defect in the product into the hands of the defendant confronts the plaintiff with greater difficulties. There is first of all the question of lapse of time and long continued use. This in itself is not enough, even when it has extended over a good many years, to defeat the recovery where there is satisfactory proof of an original defect; but when there is no definite evidence, and it is only a matter of inference from the fact that something broke or gave way, the continued use prevents the inference that the thing was more probably than not defective when it was sold.

Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791, 844-45 (1966).

101. *See, e.g.*, Kaczmarek v. Mesta Mach. Co., 463 F.2d 675 (3d Cir. 1972); Estabrook v. J.C. Penney Co., 105 Ariz. 302, 464 P.2d 325 (1970); Tuscon Gen. Hosp. v. Russel, 7 Ariz. App. 193, 437 P.2d 677 (1968); Quirk v. Ross, 257 Ore. 80, 476 P.2d 559 (1970).

102. 457 Pa. 321, 319 A.2d 914 (1974).

which the pipe was suspended became disengaged. In denying plaintiff's claim against the crane manufacturer, the court stated,

> The age of an allegedly defective product must be considered in light of its expected useful life and the stress to which it has been subjected. In most cases, the weighing of these factors should be left to the finder of fact. But in certain situations the prolonged use factor may loom so large as to obscure all others in a case.[103]

A manufacturer is not liable for defects that arise through a product's normal wear-and-tear. By producing no evidence of a specific defect to negate the inference that the accident was caused by "the vicissitudes of over twenty years of rugged use," plaintiff failed to meet his burden of proof.[104]

IV. Burden of Proof

"Strict liability eliminates both privity and negligence, but it still does not prove the plaintiff's case."[105] Plaintiff bears the burden of proving both that the product was defective[106] and that the defect caused the harm.[107] Inherent in this burden is a less obvious requirement: plaintiff must show that no substantial change occurred.[108]

A conflict about proof of substantial change exists.[109] Some courts hold that a prima facie showing of strict liability requires plaintiff to go foward with evidence of no substantial change or suffer a directed verdict.[110] This additional burden is proper in situations in

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103. *Id.* at 336, 319 A.2d at 923.

104. *Id.* at 335, 319 A.2d at 922. *Compare* Kuisis v. Baldwin-Lima-Hamilton Corp., 457 Pa. 321, 319 A.2d 914 (1974) *with* Tucker v. Unit Crane & Shovel Corp., 256 Ore. 318, 473 P.2d 862 (1970). In a situation factually similar to *Kuisis* the court in *Tucker* held that plaintiff's evidence of a defect in the crane, even though attacked on cross-examination and by defendant's experts, was enough to overturn the inference that age and long use of the machine caused the injury. *Id.* at 321-22, 473 P.2d 863.

105. Prosser, *The Fall of the Citadel (Strict Liability to the Consumer)*, 50 MINN. L. REV. 791, 840 (1966).

106. RESTATEMENT § 402A, comment *g* at 351.

107. *See* note 21 and accompanying text *supra.*

108. *See* Dennis v. Ford Motor Co., 471 F.2d 733 (3d Cir. 1973); Southwire v. Beloit E. Corp., 370 F. Supp. 842 (E.D. Pa. 1974); O.S. Stapley Co. v. Miller, 103 Ariz. 556, 447 P.2d 248 (1968); Bradford v. Bendix-Westinghouse Auto. Air Brake Co., 33 Colo. App. 99, 517 P.2d 406 (1973); Guglielmo v. Klausner Supply Co., 158 Conn. 308, 259 A.2d 608 (1969); Rossignal v. Danbury School of Aero., Inc., 154 Conn. 549, 227 A.2d 418 (1967); Cornette v. Searjeant Metal Prods., Inc., 147 Ind. App. 46, 258 N.E.2d 652 (1970).

109. The phrase "burden of proof" encompasses two separate burdens. One burden is that of producing evidence satisfactory to the judge of a particular issue in fact. Failure to meet this burden leads to an adverse ruling, generally a finding or directed verdict. The second is the burden of persuading the trier of fact that the alleged fact is true. This burden is crucial only if the parties have sustained their burdens of producing evidence and only when all the evidence has been introduced. *See* MCCORMICK ON EVIDENCE § 337 (E. Cleary 2d ed. 1972).

110. *See, e.g.*, Guglielmo v. Klausner Supply Co., 158 Conn. 308, 259 A.2d 608 (1969); Rossignol v. Danbury School of Aero., Inc., 154 Conn. 549, 227 A.2d 418 (1967).

which a product passes through several hands and comes into plaintiff's possession as part of a used machine.[111] This requirement has been misapplied, however, to situations in which alteration is not an issue. Recovery in strict liability has been denied simply because plaintiff failed to allege no substantial change.[112]

Recognizing the problems of placing the burden of coming forward on plaintiff, some courts have shifted that responsibility to defendant.[113] This shift avoids the risk of dismissal on technical grounds.[114] More importantly, this shift acknowledges that substantial change is often perceived as an issue only by defendant, who is completely familiar with his product. The court in *Southwire v. Beloit Eastern Corp.*[115] adopted the shift with the following words:

> [A]s a general rule, rather than requiring a plaintiff to negate an infinite number of possible changes, it seems more reasonable and in keeping with our adversary process to expect the defendant to allege the substantial changes he expects a plaintiff to try to disprove.[116]

As *Southwire* implied, no matter which party is assigned the burden of going forward with evidence on the substantial change issue, the burden of persuasion[117] remains on plaintiff.[118] Proof that a defect caused an injury and proof that no substantial change existed are opposite sides of the same coin. Failure to prove lack of substantial change is equivalent to failure to prove causation.[119] This burden of persuasion, on the other hand, does not require plaintiff to disprove "every possibility conceived by defense counsel's inventive mind. To require such a burden is tantamount to abolishing his cause of action . . . ."[120]

V. Nonoccurrence of Expected Change

Comment *p* of section 402A discusses a manufacturer's liability when his "product is expected to, and does, undergo further process-

111. Rossignol v. Danbury School of Aero., Inc., 154 Conn. 549, 227 A.2d 418 (1967).
112. *See* Guglielmo v. Klausner Supply Co., 158 Conn. 308, 259 A.2d 608 (1969).
113. *See* Dennis v. Ford Motor Co., 471 F.2d 733 (3d Cir. 1973); Southwire v. Beloit E. Corp., 370 F. Supp. 842 (E.D. Pa. 1974).
114. *See* note 112 and accompanying text *supra.*
115. 370 F. Supp. 842 (E.D. Pa. 1974).
116. *Id.* at 857.
117. *See* note 109 *supra.*
118. *See* notes 105-08 and accompanying text *supra.*
119. Southwire v. Beloit E. Corp., 370 F. Supp. 842, 857 (E.D. Pa. 1974).
120. Dennis v. Ford Motor Co., 332 F. Supp. 901, 903 (W.D. Pa. 1971).

ing or other substantial change after it leaves his hands and before it reaches those of the ultimate user or consumer."[121] No mention is made, however, of those situations in which the change a manufacturer expected does not occur. Thus, an important question arises about a manufacturer's liability for an injury that would have been prevented by the expected change. Surprisingly, the cases that approach this question involve either safety guards on punch presses[122] or safety controls on hot water heaters.[123] The punch press cases extend liability to the manufacturer but the boiler cases do not.

The leading decision absolving a manufacturer of liability when an expected alteration did not occur is *Schipper v. Levitt*.[124] Defendant York manufactured water heaters. Levitt, a mass developer of homes, purchased heating units from York. The heaters were manufactured without mixing valves, which are devices used to reduce domestic water temperature to acceptable levels. Although York in its instructions strongly recommended their use, Levitt deliberately failed to install mixing valves. An infant plaintiff, the son of lessees of a home built by Levitt, was severely scalded by hot water from the bathroom sink. Suit was brought against both York and Levitt, but the court held that strict liability applied only to Levitt.[125] In dismissing the claim against York the court found it impractical for York to attach mixing valves in the manufacture of its heaters or to require purchasers to use them.

> In the developing steps toward higher consumer and user protection through higher trade morality and responsibility, the law should view trade relations realistically rather than mythically. Thus viewed, it is difficult to see how York could reasonably have been expected to do anything other than fill Levitt's purchase order while expressing its recommendation in clear and strong terms as it did.[126]

Economic reality also was emphasized in *State Stove Manufacturing v. Hodges*.[127] Failure of a contractor to install the recommended temperature valve led to an explosion that destroyed plaintiff's home. As in *Schipper* the court discovered that "manufacturers of water heaters commonly do not install such safety appliances, which are customarily and more conveniently installed by a plumber."[128]

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121. RESTATEMENT § 402A, comment *p* at 357.

122. Wheeler v. Standard Tool & Mfg. Co., 497 F.2d 897 (2d Cir. 1974); Finnegan v. Havir Mfg. Corp., 60 N.J. 413, 290 A.2d 286 (1972); Bexiga v. Harris Mfg. Corp., 60 N.J. 402, 290 A.2d 281 (1972); *cf.* Rios v. Niagra Mach. & Tool Works, 12 Ill. App. 3d 739, 299 N.E.2d 86 (1973).

123. State Stove Mfg. v. Hodges, 189 So. 2d 113 (Miss. 1966).

124. 44 N.J. 70, 207 A.2d 314 (1965). A subsidiary of Levitt that acted as purchasing agent also was joined, but is unimportant to this discussion.

125. *Id.* at 97, 207 A.2d at 329.

126. *Id.* at 99, 207 A.2d at 330.

127. 189 So. 2d 113 (Miss. 1966).

128. *Id.* at 122.

Installation of the heater without a temperature valve, therefore, constituted a misuse that barred a strict liability claim against the manufacturer.[129]

In contrast to *Schipper* and *State Stove* are cases concerning the failure of an intermediate party to install protective devices on punch presses.[130] These cases emphasize protection of the user, rather than realistic trade practices. The leading case is *Bexiga v. Havir Manufacturing Corp.*,[131] in which defendant manufactured a punch press purchased by plaintiff's employer. Plaintiff, who lost the fingers of his right hand, contended that the machine was unreasonably dangerous without a device to prevent the ram from descending while the operator's hand was underneath it. The manufacturer argued the impracticability of equipping the machine with such a device before its use was determined. The court held, however, that impracticability alone will not allow a manufacturer to escape liability.

> The public interest in assuring that safety devices are installed demands more from the manufacturer than to permit him to leave such a critical phase of his manuacturing process to the haphazard conduct of the ultimate purchaser. The only way to be certain that such devices will be installed on all machines—which clearly the public interest requires—is to place the duty on the manufacturer where it is feasible for him to do so.[132]

The court concluded that since it was feasible for the manufacturer to install a safety device, the trial court erred in dismissing the claim in strict liability.[133]

Theories espoused by courts do not always indicate the true motives behind their decisions. The *Schipper* court could easily speak in terms of market place realities because "plaintiffs [had] been afforded wholly adequate protection against Levitt."[134] Similarly, plaintiff in *State Stove* could seek damages from the developer in negligence, if not from the manufacturer in strict liability. Both courts restricted applicability of section 402A because of the proximity of a financially responsible party. When the party who made the alteration is unavailable, however, the inadequacy of the rationale in the boiler cases becomes apparent. In *Bexiga* no intermediate party was before the court; the factory owner's liability was controlled by workmen's

129. *Id; see* notes 59-69 and accompanying text *supra.*
130. Cases cited note 122 *supra.*
131. 60 N.J. 402, 290 A.2d 281 (1972).
132. *Id.* at 410, 290 A.2d at 285.
133. *Id.* at 411, 290 A.2d at 285.
134. Schipper v. Levitt, 44 N.J. 70, 98, 207 A.2d 314, 329 (1965).

compensation laws.[135] Under *Schipper* the fixed amount of workmen's compensation, thus, would be the total recovery of an injured party. Moreover, *Schipper* provides no impetus to a manufacturer to install safety devices in the future.[136] To protect both the injured party and those who will be exposed to the same dangers, courts should extend strict liaiblity to the manufacturer.

VI. Conclusion

That substantial change remains a hazy area of products liability law is surprising in view of the frequency with which the issue has arisen. Too often courts determine the strict liability of a manufacturer for a subsequently altered product by using concepts borrowed from negligence and warranty law. This approach disregards the purposes of strict liability. Any causal connection between an injury and a defect attributable to a manufacturer should extend liability to the manufacturer. An alteration should be considered a substantial change only when it is the sole cause of the harm.

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135. 86 HARV. L. REV. 923, 925 (1973).
136. *Id.* at 928.